

Audio-frequency magnetotelluric survey over Sakurajima Volcano

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An audio-frequency magnetotelluric survey was conducted at over Sakurajima volcano in November 2007. The survey was carried out within a framework of the 7th National Project for Prediction of Volcano Eruptions. Since explosive Bulcanian eruptions often occur at the craters of Minami-dake, a summit of Sakurajima volcano, we measured the electromagnetic fields at frequencies from 1 to 10400 Hz along the three lines set on the northern, western, and southeastern flanks. The observation sites were 27 in total. As a result of the preliminary analysis, we obtained the following features in the resistivity model. The surface layers showed high resistivity (100-1000 ohm-m), probably corresponding to the lava. A low resistive layer of several ohm-m was widely seen over the edifice at depths of 200 to 1000m, which would reflect the fracture zone filled with the sea water. This conductive layer is likely to be deep in the southwestern part of Sakurajima beneath Nabeyama pumice cone that erupted in 764 and the lava was erupted on the southern rim in 1914. Contrary, such resistive portion was not found around the Taisho crater located on the western flank.